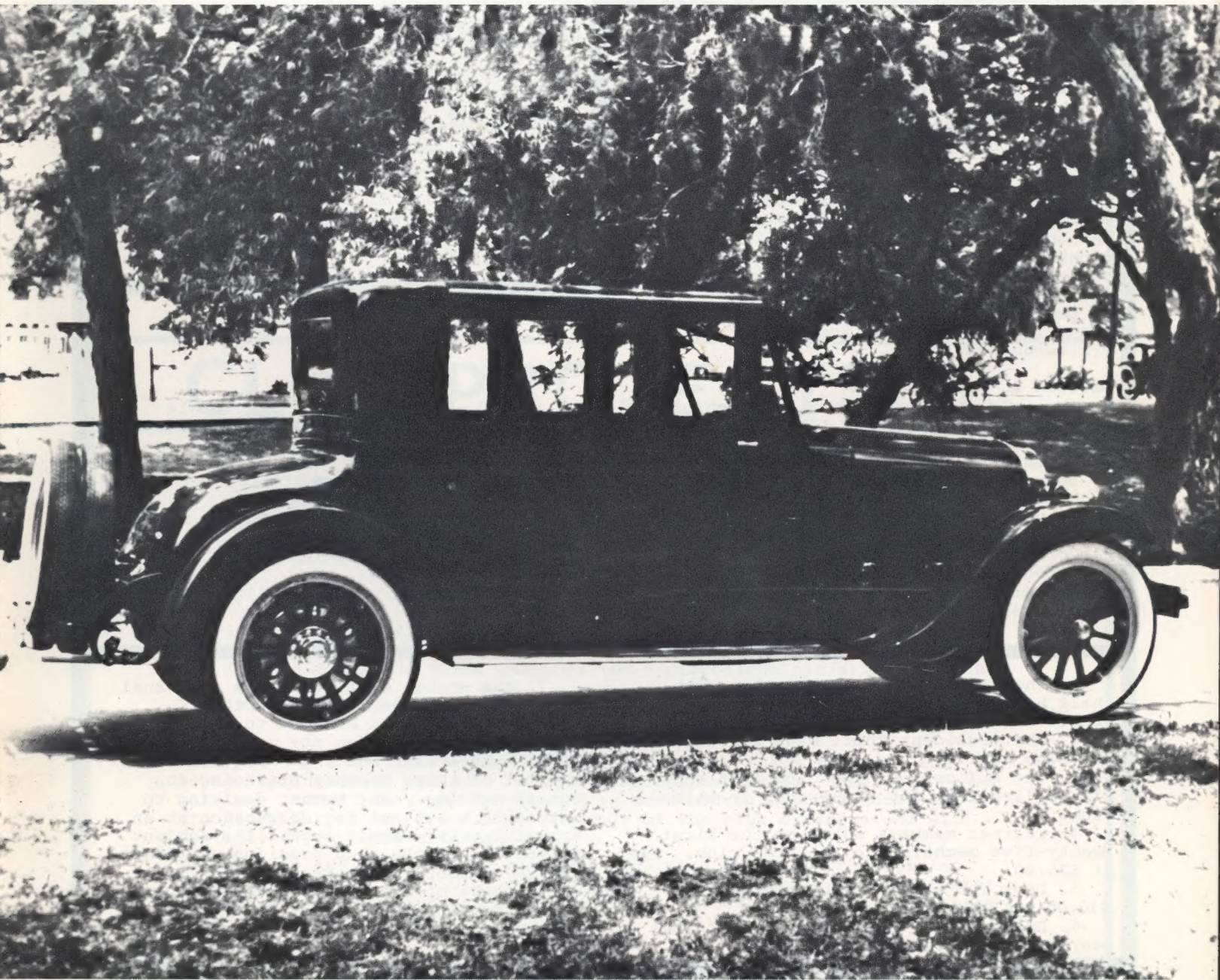


The FORK *and* BLADE

THE PUBLICATION OF THE LINCOLN OWNERS' CLUB, INC.

MARCH-APRIL 1977

VOLUME 16 NUMBER 2



1923 LINCOLN 5-PASSENGER COUPE, OWNED BY W.E. CAREY

THE FORK & BLADE is published bi-monthly by The Lincoln Owners' Club at 821 West Chicago Street (Box 189) Algonquin, Ill. 60102. Membership dues are \$10.00 per year, payable to THE LINCOLN OWNERS' CLUB. Second-class postage paid at Algonquin, Ill.

THE FORK AND BLADE

THE FORK AND BLADE is the official publication of The Lincoln Owner's Club Inc. It is a non-profit organization dedicated to the restoration and preservation of the classic Lincoln. The articles and opinions published do not necessarily represent the opinions of the general membership, the club officers, or the editors. Every attempt is made to publish only accurate and beneficial information to club members. However, no responsibility is assumed by the editors or the club for any damages incurred or losses sustained as a result of this information.

CONSTITUTION OF THE LINCOLN OWNERS' CLUB, INC.

Section 1.-Name and Purpose.

The name of the club which is a non-profit membership corporation chartered in the state of Connecticut, shall be The Lincoln Owners' Club, Inc. The purpose for which the club is founded is to further the restoration and preservation of Lincoln motor cars produced by Leland and Ford up through 1940 with the exception of the Zephyr and the Continental, to provide a channel of communication for those interested in such cars, and to bring together in good fellowship all who own or admire these fine examples of automotive craftsmanship.

Section 2.-Members.

The sole requirement for membership is a demonstrable interest in Lincoln automobiles including Leland Lincolns, L series, K series, and KA-KB series, and membership is open to any person with such an interest.

Officers will be elected by the membership by plurality vote at the annual meeting which will take place during the month of October. Officers will consist of a president, vice-president, secretary-treasurer, all to serve for one year and until their successors have been elected.

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BYLAWS

1. The principal office of this club shall be maintained at the office of the president.

2. The president shall have custody of the club seal.

3. The officers of the club must approve all applications for membership in this club.

4. Charter members shall be the first twenty-five members who join the club. Fee of \$25.00.

5. Dues for active members shall be **\$10.00 per year.**

6. Dues will be charged for the fiscal year beginning February 1st.

7. The annual meeting of the club shall be held during the month of October. Written notice will be sent to all members not less than fourteen nor more than thirty days, before such meeting. A quorum will consist of those members attending the annual meeting. Any member desiring to introduce a subject for discussion at an annual meeting should submit the subject in writing to the club president at least ten days prior to the meeting.

8. These bylaws may be amended at any annual meeting by majority vote of the members present.

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POTPOURRI

1. Set aside August 6th for DEARBORN '77 and plan on being there, please.
2. The KB on the Jan/Feb. F&B is supposed to be a dealers, pre-delivery photograph. When was the last time you saw a '32 KB Town Car with '32 plates and a Beverly Hills license plate frame?
3. Does anyone know the whereabouts of Mr. Corriher? His last known address was Box 92, Landis, N.C. He has a 1923 limo. a fellow member wants to see for tech. help. Please drop a line if you can help us.

CLUB PROJECTS

1. 1924-1930 LINCOLN SERVICE BULLETINS \$ 30.00
2. 1931-1935 LINCOLN SERVICE BULLETINS 25.00
3. AUTHENTIC COVERS FOR 1924-35 LINCOLN SERVICE BULLETINS 5.00
4. L LINCOLN SHOP MANUAL, Available NOW 20.00
5. 1921 LINCOLN SALES CATALOG, When Available 5.00
6. 1931-1938 CHASSIS PARTS CATALOG, (on 4 microfiche cards). . . . 5.00
7. 1931-1937 BODY PARTS LIST CATALOG, (on 8 microfiche cards). . . 5.00

Items #1-4 are available for immediate delivery. Items #6 and 7 are being reprinted and are now, or will be soon, available. The 1921 sales catalog, item #5, may not be printed if more orders are not received. Mr. Henry Harper has been given a supply of the club projects and will be filling your orders from now on.

If you have any questions or problems regarding the club projects let Mr. Harper know. All L.O.C. reprints are sold on a money back guarantee. You pay the postage and see that the item in question is returned in the same condition as sent.

COVER CAR STORY

OR

A TRIBUTE TO HENRY M. LELAND

By W. E. CAREY

A little over two years ago I heard of a 1923 Lincoln 5 passenger coupe in dismantled condition in Big Sandy, Texas. At that time I was approached by the owner to make a bid on restoring the car.

When I arrived at the building where it was stored I found parts everywhere: in broken boxes, plastic waste baskets, a pile of bolts here, an axle there. The headlights were laying face down on the beautiful Baush & Lomb lens. The wheels were on the car, rims all rusted together and no bolts in the hubs to hold the spokes.

It was a sad case: bad wood, no glass, no top, no seats, lots of boxes of parts - a great challenge. To top it off the owner asked "Can you restore it for around \$2,500.?" I smiled and slowly shook my head - NO.

Then my partner and I offered to buy the car as is. Also included in the deal was a 1923 Lincoln 7 passenger sedan parts car. We arrived at a figure and within a few weeks I had both cars and the parts in my shop in Houston.

Of course it was the same old story of down to the frame and start all over. Plated parts to the chrome shop, the body to a wood shop, rims to the cad. plater, and order new tires. Then I started an item for item search through all the parts to catalogue what looked like all Lincoln parts. I found Ford V-8 rod shells, Chrysler motor mounts, and a bobbin for a Singer Sewing machine (this really threw me!). I will say this, that as old and dirty as the machine bolts and nuts were, they cleaned up to a bright finish with little work. I felt that was good as I wanted to use as many of the original nuts and bolts as possible.

To make a long story short here is the program:

Car purchased April 1974
 Restoration started Jan 1975
 150 hours spent on body removal, tear down chassis, build up engine for 1st road test - a few miles . . . March 1975
 30 hours on chassis & some sheet metal work. April 1975
 Body work, paint, glass . . . July 1975
 Chrome finished Aug 1975
 Rims cap plated & tires on. . . Sept 1975
 Last road test (without body 15-20 miles) Oct 1975
 Small parts and fittings on . . Dec 1975
 Another road test Jan 1976
 Uph. & top installed Mar 1976
 Running boards, outside trim, small parts and interoir hardware on May 1976

In June 1976 the finished car was driven to San Marcus, Texas, and back to Houston and

then on tour in the area for a total of 410 miles. No repairs or adjustments were needed, and we added only one pint of oil. At the meet the Lincoln got a first place trophy in its class.

I would like to say that as I became deeply engrossed in this restoration I realized that this was no ordinary car. It has a unique history. Engineered by a craftsman, Henry M. Leland, the master of precision. What, with the little I did to bring this fine car back, I consider it a privilege to have worked on it.

The trophy and recognition are appreciated, but the greatness was already there. All I did was clean it up.

We should all remember that the man who made the car possible should be considered as the real winner. He deserves the glory of our trophies.

HEAVY TRAFFIC

FOR SALE

1932, KA, Murry 4 door parts, body, fenders, rear and front end assy., radiator, trans., rear bumper and many small items. SSAE for details. Gordon Clark, 12 Lehigh Road, Wilmington, Del. 19808 994-2138

WANTED

For 1921 Model 108, 7 Pass. sedan, body & mechanical parts. For a 1925 Model 123B Phaeton, body parts - windshields, ect.. For a 1927 Phaeton, top bows and ANY body parts. Delmar D. Voegele, 1138 North 81st Street, Seattle, Wash. 98103 206-522-3940

Need an engine overhaul gasket set (heads & manifolds esp.) for a 1925, Ser.#25928 Richard J.M. Bell, 1427 Klondike Ave. S.W., Calgary, Alberta, Canada T2V 219,

For my 1932 KA sedan, front fenders with wells, parking lites, air cleaner/silencer ass'y, hub caps, fuel pump, fuel gage face with bezel, front bumper, interior window shade hardware, horn, high speed air bleeders for carb., and right hand engine splash pan. J.M. Reynolds, 21260 Plattsburg Dr., Southfield, Mich. 48034 313-356-2057

Need a left tail light complete with lens & plate bracket for my 1937 K. Glenn E. Smith, P.O. Box 74, Fremont, Calif. 94537 415-796-8272

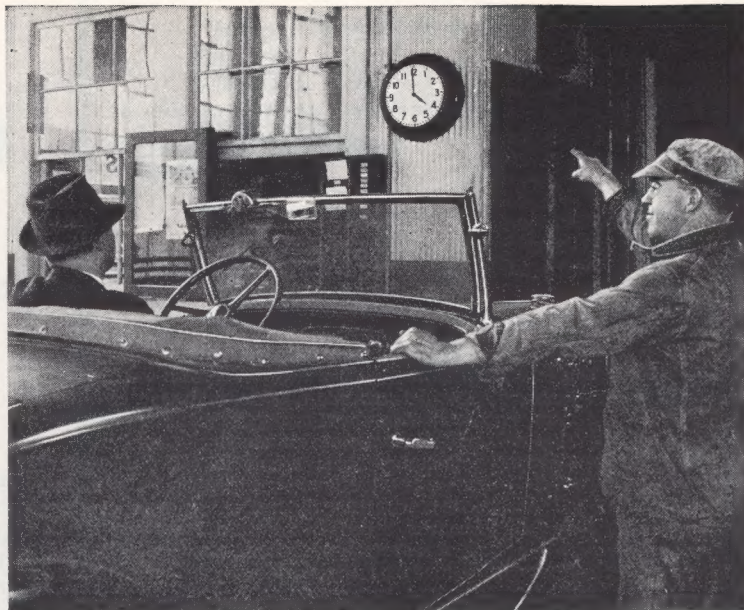
For a 1936-39 K (145" W.B.), running boards both sides. F.H. Hancock, 4612 King William Road, Richmond, Va. 23225 804-231-2061

Ads are free to members. To avoid errors we ask you to please print or type your ad, including your name, address, zip, and phone number and mail to the Editor.

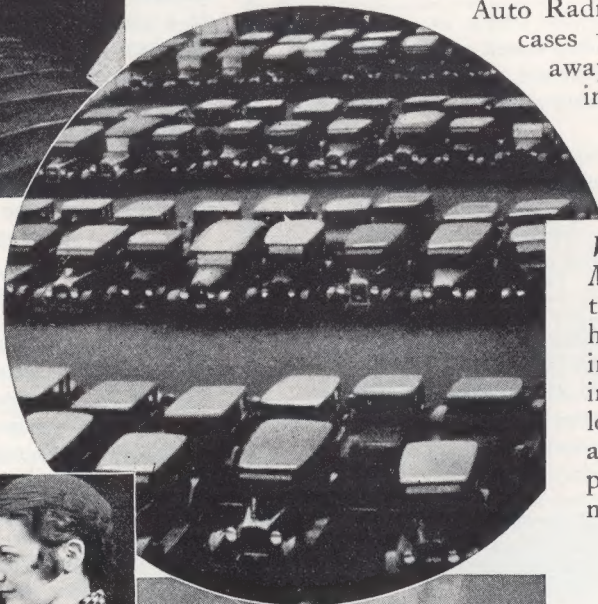


A Sensationally Low-Priced Auto Radio

General Electric's new Auto Radio, which is priced to retail for only \$39.95. It's a real G-E—with real G-E tone.



Car Made Musical In Jig-Time—Installing the new G-E Auto Radio is so easy that in many cases your customer can drive away listening to his new radio in less than an hour. One-bolt mounting—only two electrical connections.

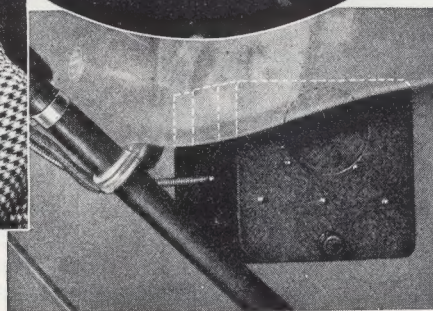


Wide Open "Quick Money" Market—Only about 1% of the autos in America now have auto radios. The growing popular demand for these instruments makes the new low-priced G-E Auto Radio an especially promising profit-maker in this virgin market.



A Powerful New Circuit

The new G-E Auto Radio has a new hook-up which makes its 4 tubes give the performance of 7.



An Almost Invisible Entertainer

The new G-E Auto Radio is so wonderfully compact that it's never in the way and it's almost completely out of sight.



The new low-priced G-E Auto Radio described on this page can steer many new and profitable customers your way.

For complete details, write today to Section R378 General Electric Co., Merchandise Dept., Bridgeport, Conn.

GENERAL ELECTRIC AUTO RADIO

INSTALLATION SPECIFICATIONS

Car name	Battery Terminal Grounded	Type antenna	Location of lead-in
Auburn 8-105, 12-165.....	P	Screen in roof.....	Front
Buick.....	N	Galvanized screen in top	Front
Cadillac.....	P	Galvanized screen in top	Front
Chevrolet.....	N	Galvanized screen in top	Front
Chrysler.....	P	Poultry screen roof....	Side
DeSoto.....	P	Poultry screen roof....	Side
Dodge.....	P	Poultry screen roof....	Side
Essex.....	N	Stranded wire in top...	Front
Ford.....	P	Poultry screen roof....	Top screen cleared but no lead-in
Franklin.....	P	Poultry screen roof. Op- tional in Olympic....	Front
Graham.....	P	Optional-Copper screen in top.....	Front, shielded
Hudson.....	N	Stranded wire in top...	Front
Hupmobile.....	P	Poultry screen roof....	Front
LaSalle.....	P	Galvanized screen in top	Front
Lincoln.....	N	Poultry screen roof....	Rear, shielded
Nash 6, St, Sp. 8	N	Poultry screen roof....	Front
Nash Ad, Am. 8	P	Poultry screen roof....	Front
Oldsmobile.....	N	Galvanized screen in top	Front
Packard.....	P	Poultry screen roof....	Front
Pierce-Arrow...	P	Poultry screen roof....	Front
Plymouth 112" w. b.....	P	Poultry screen roof. Op- tional on 107" w. b. models.....	Side
Pontiac.....	N	Galvanized screen in top	Front
Reo.....	N	Poultry screen roof. Op- tional on model S....	Front
Rockne.....	P	Poultry screen roof....	Front
Studebaker.....	P	Poultry screen roof....	Front
Willys.....	N	Optional.	

BY EDWARD H. BARRY
Service Editor of MoToR

AUTO radio sets operate on a very small antenna, are extremely sensitive and, therefore, have the ability to pick up extremely weak signals. Before installation, the set should be tested to make sure that it will give maximum results. The installation should be carefully made and precautions taken to eliminate sources of interference.

ANTENNA . . . Most satisfactory and efficient results are obtained from a roof-type antenna. As shown in the table, most closed cars are now equipped with this type antenna. The lead-in wire from the antenna will usually be found coiled up beneath the instrument panel. Many of the earlier cars have a wire screen in the top and if it is not grounded, can be used as the antenna by simply soldering a lead-in wire to it. In most cases, however, the screen is grounded and therefore cannot be used.

Even though the car is equipped with an antenna, it should be checked to make sure that it is not

A u t o

How To Get Maximum As Well As Those

grounded in any way, for a receiver will not operate with a grounded antenna. A test for ground can easily be made by touching the lead-in to the terminal of the battery that is not grounded. If there is no spark, the antenna is not grounded and can be used. If there is no lead-in, the screen can sometimes be checked for grounds without taking down a corner of the head lining by using a thin awl to which one end of a circuit test meter has been attached. The other end being grounded to the frame of the car. Some manufacturers recommend that the screen be checked with a high resistance voltmeter and B battery or with an accurate ohm meter. The resistance should be in excess of $\frac{1}{2}$ megohm.

For cars on which the screen is grounded, and open cars, an under the car antenna is usually recommended.

If the top screen is grounded or if no screen is present, it will be necessary to remove the entire head lining. In the former case, the screen may sometimes be insulated by removing strips from the screen so that it is at least five inches from the metal eaves, dome light or other metal parts of the roof. The possibility of subsequent shifting may be eliminated by tacking the screen to one of the slats and by lacing the sides with cord. To insure a neat installation, removal and replacement of the head lining should be done by a top man or one familiar with this type of work.

If it is possible to install a roof-type antenna, use bright copper or bronze wire fly screen of the proper width to avoid cutting lengthwise. Do not use galvanized or oxidized copper screen. Use a large piece and tack it to the slats as near to the rear as possible. It should not come within five inches of the metal eaves, dome light or other metal parts of the roof so that it may be necessary to cut holes in it. Solder the edges of the screen around any holes and solder one of the cut edges to make a permanent connection between the individual wires as a precaution against noise developing in the future. If the width of the screen was correct without cutting, it will not be necessary to solder the selvage edges. Tighten and, if necessary, solder the dome light connections. Tack the dome light wire to the upper edge of the bow so that it will not sag or vibrate. After the screen is in place and before the head lining is replaced, test the screen for possible grounds. Repeat this test several times while the lining is being replaced.

An alternative type of roof antenna can be made by running insulated wire such as 7 strands of No. 30, rubber covered, back and forth the length of the car. These wires should be about three inches apart and can generally be run between the bows. There should

Radio

Results From New Sets Already In Service

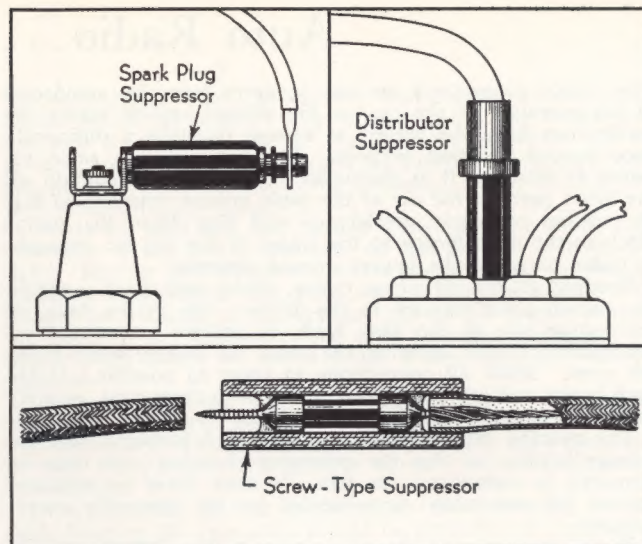
be between 30 and 50 feet of wire for a good antenna of this type.

The antenna should be connected to the receiver with a low capacity shielded single conductor wire. If a lead-in is already furnished with the car it should be shielded at least between the point where it comes through the post to the antenna cable on the receiver. The lead-in wire should be soldered to the antenna and its shielding either soldered or bonded to the car frame before replacing the head lining. The lead-in should be carried down the pillar nearest to the receiver and kept above the floorboard until it is directly over the receiver. It should not be on the post that carries the dome light wire or switch. The lead-in should be soldered to the antenna cable at the set unless a special connection is furnished with the set and the connection insulated from the shielding.

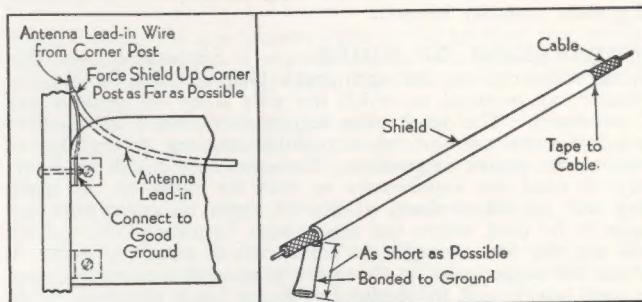
When an under car antenna is necessary, it should be clamped to the frame of the car as close to the rear as possible. It may be necessary to mount the plate crosswise on the chassis. The plate must be as close to the ground as possible but not below the lowest portion of the car so that the car's original road clearance is retained. It must also be in a position which will not interfere with the free motion of chassis parts such as springs, drive shaft or axle. The lead-in from this antenna should be shielded and grounded in several places as it is more apt to pick up engine noises than the lead-in from a roof type antenna. The insulators must be cleaned occasionally to prevent grounding of the antenna.

INSTALLATION . . . The receiver should be connected to the battery using the shortest possible route, preferably the channel of the frame. Keep the cables out of the engine compartment and away from all high tension wires, using clamps for grounding at as many points as possible. Do not permit cables to sway, striking metal parts of the car. Do not make the connection to the starting switch or the ammeter, it will bring noises into the set. Instructions for connecting the set to the battery furnished by the set manufacturer must be followed closely as alterations are sometimes necessary, depending upon whether the positive or negative battery terminal is grounded.

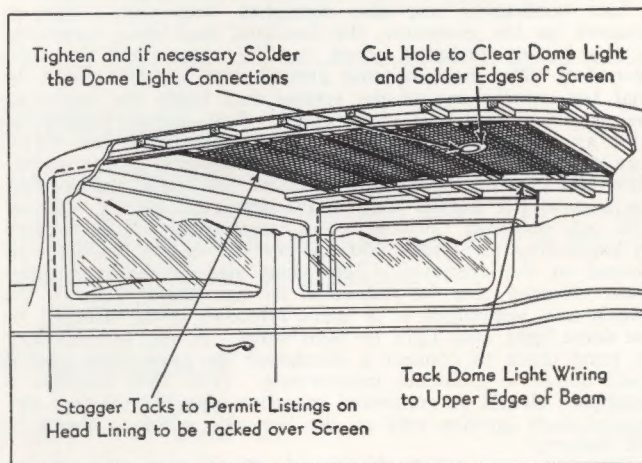
Make sure that all ground connections are tight and soldered, if possible, for good ground connections mean higher voltage and freedom from noise. In assembling a car, often times paint, or a similar substance, prevents a good ground connection being made between the various metal parts of the car which form the circuit. Bolts may also be insulated or rusted so that they do not make a good ground. (Continued on page 78)



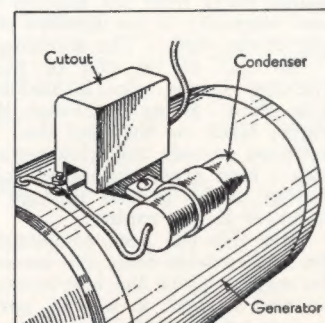
Different types of suppressors are necessary because the space available on different cars varies greatly due to the construction and location of the units



Rods, tubes or cables which come through the dash can also be grounded in a manner similar to that shown above



Best results are obtained from a roof-type antenna. If the car is not equipped with one, the type shown above will give good results



Right: Installation of condenser on generator

Auto Radio . . . continued

These poor connections are not apparent from the standpoint of the operation of the car, as the voltage applied across the connections from the battery is enough to make a sufficiently good contact for that purpose. However, when a radio receiver is installed it is particularly desirable to maintain all the metal parts of the car at the same ground potential so that no relation of spark interference will flow from the engine block to the dash thence to the frame of the car for example, in order to reach the lowest ground potential.

Bending all the oil pipes, cables, choke and spark controls, etc., which come through to the driver's side of the dash, on the engine side of the dash tends to prevent radiation from the ignition circuit entering the radio set compartment under the cowl. Make all connections as short as possible. If the dash is not metal it should be covered with sheet iron, securely bonded to the frame with copper wires.

The average set consumes around 5 to 6 amperes from the storage battery so that the generator charging rate must be advanced to compensate for this. It must never be advanced beyond the maximum recommended by the generator manufacturer.

If the generator is charging properly but difficulty is encountered in keeping the battery fully charged a battery of greater capacity will, in most cases, eliminate the trouble. If B batteries are used, a battery should be replaced as soon as its voltage is less than 35. If the ignition coil is operating at the peak of its capacity before the radio set is installed, trouble will be encountered after the installation unless a coil of greater capacity is used.

SUPPRESSION OF NOISE . . . Suppressors are furnished with sets, one for each spark plug and one for the distributor cap terminal to which the wire from the ignition coil is connected. The spark plug suppressors should be mounted in a horizontal position when possible and the cables kept as close to the engine as possible. On some cars it will be necessary to bend the suppressors so that the cable to the spark plug will not be strained. Different types of suppressors are made to be used where the suppressors furnished with the set will not fit, for example on some cars it is not possible to mount the suppressors on the spark plugs and suppressors must be used which will fit in the distributor block terminals or in the cable, after cutting it. Radio spark plugs are also made which have a suppressor built in the plug. When two ignition coils are used, a suppressor must be used in each of the distributor block terminals leading from the ignition coils. With twin ignition, suppressors are required on each spark plug.

Two condensers are also furnished with sets. One is mounted on the generator, the insulated lead being connected to the battery terminal screw on the cutout and the case grounded. The most suitable ground must be determined by trial but usually one of the screws that holds the cutout to the generator frame is satisfactory. Both screws should be tried as sometimes there is less interference with one screw than with the other. Clamp the other condenser to the instrument panel or to a convenient part of the frame and connect the lead to the battery side of the ammeter, usually the one with only one lead. In some cases interference will be reduced by connecting the lead to the battery side of the ignition coil instead of the ammeter. This must also be determined by trial. It may also be connected to the starter side of the switch and sometimes it is more effective when attached to the dome light, stop light or horn wires. It may be necessary in some cases to connect a condenser to more than one of these points to eliminate interference. With twin ignition, a condenser should be connected in series with the primary circuit of each ignition coil on the live side which connects to the battery.

Some sets also include shielding for the high tension and low tension wires from the ignition coil. This shielding should be used especially if the ignition coil is mounted on the driver's side of the dash. The shielding should not come closer than 1" to 1½" of the coil or the distributor cap. Place the shielding on the wire in the driver's compartment, and tape it in place. Bring it through the dash and ground it on the engine block or the fuel line. If the cable is not in good condition or only has a rubber covering, it should be replaced with a high grade, full-sized, cable to prevent the spark from leaking to the ground through the shielding, causing a lack of power in the engine.

After this has been completed, start the engine. Now run the lead-in wire from the set in different directions to locate the way in which the interference is reduced the most. It can be tried straight, in a bend, part straight and part in a bend, at right angles with other wires or parallel with them. When

the best position is located, it should be firmly clamped to the dash so that there is no likelihood of its coming in contact with the choke wire or other parts of the dash control. As the hood acts as a shield, and reduces or entirely eliminates many electrical noises, all tests should be made with the hood closed.

INTERFERENCE . . . Electrical interference varies in almost every installation so that every precaution should be taken when making an installation to eliminate as many sources as possible. To locate interference, a certain amount of experience, electrical knowledge and systematic checking is required to locate these objectionable noises. Electrical noises, other than those caused by the ignition, will, of course, vary widely in accordance with the number of electric accessories, such as cigar lighter, heater electric motors, etc., with which the car is equipped. Sources outside the car may cause interference depending upon the location of your shop and may be eliminated by driving the car to some other location. If a large amount of service of this type is handled, equipment can be installed to eliminate this outside interference.

The suppressors that are supplied with the set should be checked to make sure that they are installed correctly and in good condition. If the resistance of a suppressor is too low it will usually cause a noise each time the spark plug to which it is connected fires. One test is to replace each one with a suppressor that is known to be good until the defective one is located. Suppressors in good condition should have from 15,000 to 25,000 ohms resistance. Check the battery to be sure that it delivers its full 6 volts. Ground one end of the suppressor and connect the other end to the battery through a voltmeter. Joseph Weidenhoff, Inc., has compiled the following table which converts the reading on the voltmeter into resistance of the suppressor when the battery voltage is 6.

Volt Reading	Resistance in Ohms
1	125,000
1½	75,000
2	50,000
2½	30,000
3	25,000
3½	17,857
4	12,500
4½	8,333
5	5,000

Each condenser should be tested. Meters are made for this test but if one is not available, shunt each condenser with one known to be in perfect condition to determine a possible open condition which might allow interference to be radiated. Shorted condensers will of course affect the operation of the car and will be noted in that way.

Inspect all bonding which is used to ground various pipes or rods passing through the dash, making sure that none of the connections have broken loose.

A 10 ampere fuse is usually attached to one of the storage battery leads. It should never be replaced by anything but a fuse of the same rating. If a fuse blows, examine the installation to determine the cause. If the set fails to operate and the dial lamp does not light, this fuse should be removed for examination. If found to be burned out, the wiring should be inspected for shorts or grounds and all tubes tested prior to installation of a new fuse.

After the general instructions already described for suppressing noises have been tried, the following will often entirely eliminate or reduce the noise. Like shooting trouble in any other part of the car, try the first method and then test for improvement. If the result is not satisfactory proceed with the next method. Experience will soon indicate which methods are most successful with the various makes and models of cars.

First determine whether the noise enters the set through the antenna by disconnecting the antenna lead-in from the receiver while the engine is running and noting its effect on the interference. If the interference is reduced or eliminated, it may be concluded that it is being picked up by the antenna. To determine which wires are radiating the interference to the antenna, test the dome light wiring, head and tail light wiring, horn wiring, generator wiring, starting motor wiring and any other electric units that are on the car. To do this attach the lead of a condenser to the live side of the unit to be tested and ground the condenser case to the metal frame. When testing the dome light wiring, connect the condenser at a point where the live lead starts up the pillar to the switch. In the majority of cases this will locate the trouble. After it is found, mount the condenser permanently and solder the ground connection. Do not solder to the rear of the instrument panel

as the heat from the soldering iron is apt to blister the paint. If the interference continues with the antenna disconnected from the receiver, it is an indication that the interference is coming from the ignition circuit and being fed into the receiver through the radio wiring. See that the battery cable does not come too close to any high tension wiring and bind the battery cable shielding to a good ground. See that the chassis and the speaker are grounded properly and not insulated by paint.

THE entire ignition system must be in perfect condition, especially the breaker points, spark plugs, distributor rotor and cables. Dirty plugs or plugs with improper gaps will affect the operation of the radio as well as the car. Burned or improperly set breaker points will also affect performance. All high tension cables must be in good condition so that current will not leak. Replace any leaky cable. Noise in the distributor is sometimes caused because the high tension terminals or contacts in the block are not lined up perfectly due to warping or shrinking of the head or wear in the distributor. The rotor may strike a few of the contacts and miss the rest or there may be too great a gap between the rotor and the contacts in the block. In this case,peen the rotor or true the contacts. The best plan is to chalk the contacts and then after the rotor has been peened, crank the engine a few times with the ignition turned off. Remove the distributor head and examine the chalked contacts. If the rotor has cut the chalk on a few of the contacts, these contacts should be scraped down with a hard sharp tool and the rotor again peened. Repeat this operation until the rotor just traces a line through the heavy chalk layer on all contacts. Do not build up the rotor or the contacts with solder for it will burn away.

This procedure can be used successfully on the distributors of all cars with the exception of the Ford V-8. On these, due to the location and construction of the distributor head and rotor, the contacts on both distributor heads must be built up.

In order to determine whether or not the generator is causing the noise, accelerate the engine and cut off the switch. Then if a whine, decreasing in pitch as the engine stops, is noticed, the generator is causing the interference. If cleaning

the commutator does not remedy the trouble, another condenser should be installed from the generator side of the cut-out to a good ground on the frame of the generator. If no noise is noticed immediately when the switch is turned off, you can be reasonably sure that the generator is not causing the interference.

Check the high and low tension leads to the ignition coil, especially if the coil is mounted on the driver's side of the dash. Replace and shield the cables as described in the installation instructions. On some cars, it may be necessary to change the location of the ignition coil to the engine side of the dash. If the ignition switch is in the base of the ignition coil, the coil cannot be moved unless a new ignition switch is installed.

Check all high and low tension wires. Separate all wires from each other and from all other wires by metal or a six-inch air space. Noise will be picked up by any wire that runs through the conduit with ignition wires. Examine for loose connections.

If receiver and speaker are separate units, shielding on the cable between the two units should be grounded to the engine block in several places.

If lighting wires run near the spark plug wires, place all suppressors in the distributor cap.

If the ignition coil and its by-pass condenser are on the driver's side of the dash, connect another by-pass condenser from one side of the ignition switch or ammeter to a good ground.

REVERSE the low tension leads at the ignition coil, reversing the direction of current through the primary windings. Remove spark boosters from ignition coil, distributor or spark plugs.

Make sure that all light bulbs are tight in their sockets.

Tighten all connections in the ignition circuit. Push all terminals into their seats in the distributor block and ignition coil.

If the lighting switch is not in good condition, repair or replace it.

Clamp cables to make sure that they are not swaying and scraping on metal parts of the car. If there is shielding on the cable make sure that it is grounded.

Drum Thickness

After a brake drum has been rebored more than once, the metal at the braking surface may be reduced so the drum at the point is too weak to give the required braking results. A new drum should

be installed. Should the thickness, when measured with a micrometer, be less than the minimum thickness given in the table below, it is advisable that a new drum be installed.

Brakes of Bendix Manufacture

Brake Size	Brake Type	Minimum Thickness	Brake Size	Brake Type	Minimum Thickness
11 in.	All Types	.111 in.	16 in.	3-Shoe Welded Type	.157 in.
12 in.	Duo Servo	.137 in.	17 in.	Duo Servo (3 in. Lining)	
12 in.	Standard	.111 in.		Cast Drum	.281 in.
12 in.	Super Servo	.111 in.	17 in.	Duo Servo (4 in. Lining)	
13 in.	Duo Servo	.137 in.		Cast Drum	.328 in.
14 in.	All Types	.137 in.	17½ in.	Standard (3 & 4 in. Lining)	
15 in.	All Types	.137 in.		Cast Drum	.328 in.
16 in.	Duo Servo	.185 in.			

BENDIX DUO-SERVO BRAKES

Single Anchor and Equal Action

Buick, 1934, 35, Model 40
Essex, 1932, 33, 34, 35
Hudson, 1932, 33, 34, 35
Lincoln, 1934, 35
Nash, 1931, 32, 33 some, 34 all

Oldsmobile, 1932, 33
Packard (1932-900), 1933, 34,
1935 except model 120
Pierce-Arrow 1932
Pontiac 1932 and 1934

Marmon 8-125 and 16 Cyl.
Rockne
Studebaker 1931 Commander 70
and all 1932 models
Willys 1931, 32, 33, 34

Adjustment Procedure

The single anchor equal action type differs from the double anchor, and some of the earlier single anchor models in that shoe application is by means of an "equal action" (lift) cam which floats on the anchor. The cam lever pivots on the anchor, and contacts the lug "L" on the cam to apply the brakes through the medium of the cable "C."

The present recommended adjustment procedure differs from the instructions given in the previous edition of this manual mainly in the fact that clearance is checked at the eccentric controlled shoe of front and rear brakes (instead of at secondary shoe) and also that heel and toe ends of this shoe are set to same clearance.

Some of the single anchor models are provided with an eccentric type anchor and others use the sliding type. A few are provided with a stop for the lower shoe as shown in Figs. N29B and N29C.

Minor Adjustment

1. Jack up all four wheels. Disconnect all four pull cables at their cross shaft levers. Make sure that service pedal, hand brake lever and cross-shaft are in fully released position. Loosen eccentric adjustment locknut "A," Fig. N29A.
- 1a. If brakes are equipped with shoe stop as in Fig. N29C, loosen the locknut and move each stop upwards in its elongated hole and temporarily tighten the locknut. This will eliminate interference during shoe adjustment.
2. Remove inspection hole cover from each brake drum and adjusting hole cover "C" from each backing plate. Insert a .010 in. feeler blade at adjusting screw end of that shoe which bears against the eccentric as shown in Fig. N29A. Now turn eccentric adjustment screw "A"

(towards front of car))until .010 in. feeler is just **gripped**. Do the same to the other three brakes, then tighten eccentric lock nuts.

3. Expand shoes by means of adjuster "D" at each wheel until wheels can just be turned with both hands. Now adjust each pull cable length so that clevis pin will just enter with cable pulled tightly. Insert clevis pins then **back off** "D" until each wheel is just free. Using hand brake lever or pedal jack, apply **medium** pressure to brake pedal and if brake drag is **not** alike at all four road wheels, **back off** the notched screw "D" on **tight** brake.
4. Try car on testing machine or road and make final equalizing adjustments by **backing off** notched wheel "D" at the **tight** brake.

Major Adjustment

Disconnect all four pull cables at their cross-shaft levers. Make sure that cross shaft, pedal and hand brake lever are in fully released position and operate freely.

5. Jack up all four wheels. Insert a .010 in. feeler at the adjusting screw end of that shoe which bears against the eccentric and adjust **eccentric** "A," N29A, until feeler is just **gripped**. Tighten locknut just enough to hold position.
6. The next step is to adjust anchor to get proper heel clearance.

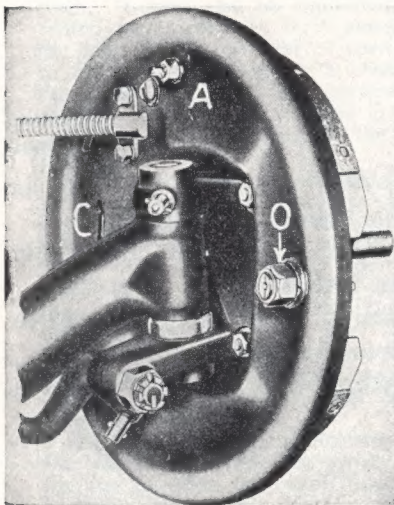
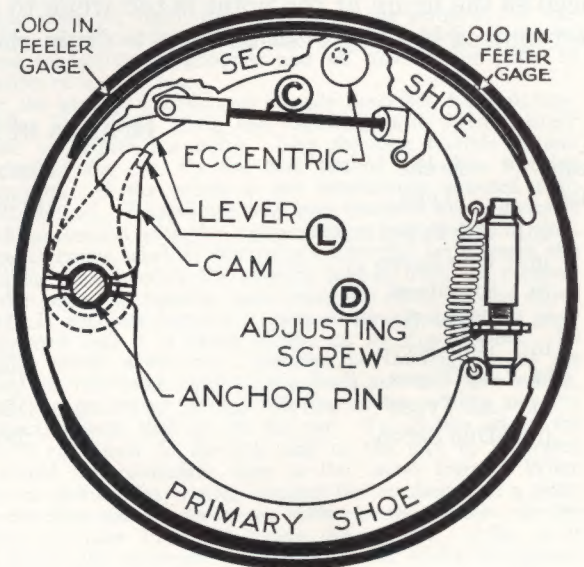


Fig. N29A—Models with Double Anchor Springs (left front)

- A—Eccentric, controls adjuster end of shoe
P—Primary shoe
S—Secondary shoe
C—Cover plate for clearance adjuster
O—Anchor, controls anchored (heel) end of shoe



BENDIX SINGLE ANCHOR AND EQUAL ACTION

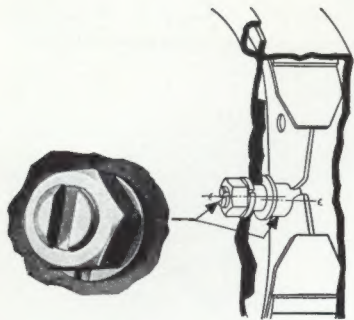


Fig. N29B—A screwdriver slot identifies the eccentric type anchor pin

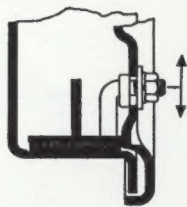


Fig. N29C—If a shoe stop is used it will be at lower end of backing plate as shown above

There are two types of anchor now in use. The plain sliding type is identified by reference to "O" in Fig. N29A. The eccentric type may be identified by the screwdriver slot in its end as in Fig. N29B.

Sliding Type Anchor

If you are working on a plain sliding type anchor, loosen the anchor locknut at "O" one turn; then insert a .010 in. feeler blade between lining and drum at anchored end of eccentric controlled shoe as shown in Fig. N29A and tap the anchor pin lightly in desired direction until .010 in. feeler is just gripped. Holding this position, tighten anchor locknut as tightly as possible with a 16 in. wrench. Also tighten the locknut on eccentric adjustment. Do the same on other 3 brakes.

Eccentric Type Anchor

- 6a. If you are working on a job with eccentric type anchors, as in Figs. N29B or N29F, loosen the anchor locknut sufficiently to allow you to turn anchor with a screwdriver; then insert a .010 in. feeler at anchored end of eccentric controlled shoe as outlined in paragraph above. Now turn anchor until .010 in. feeler is just gripped. Recheck adjusting screw end of the shoe with .010 in. feeler and, if necessary, slightly readjust eccentric and anchor at same time so that .010 in. feeler is a snug fit at both ends. Holding this position, tighten eccentric adjustment and anchor locknuts, using full leverage of a 16 in. wrench on the latter. Do the same on other three brakes.
7. Expand shoes by means of the clearance adjuster "D" until all four road wheels can just

be turned with both hands. Now adjust each pull cable length so that clevis pin will just enter with cable pulling tightly. Now back off on "D" until each wheel is just free.

8. Apply brakes by hand lever or pedal jack and if drag is not uniform loosen notched wheel adjuster "D" at tight brake.
9. Move each shoe stop down until it just contacts shoe as shown in Fig. N29C, then tighten stop locknut at all four wheels.
10. Try car on testing machine or road and make final equalizing adjustment by backing off notched wheel adjuster at the tight brake.

Note 1: Whenever shoes are removed lubricate cables with graphite grease and backing plates at points where shoes rub. Too much tension on shoe steady rest springs, "11," may produce sluggish action, weak springs, cause noise.

Note 2: Willys cars of the series 66D, 96A, 97D, 90 and 95 were built with flat sided non-adjustable anchor pins. Shoes used are stamped "18307" and differ from regular models in that anchor ends are formed to allow a floating fit on anchor. Adjustment procedure is same as for adjustable anchor models except omit paragraphs 6 and 6a.

The heavier shoe to anchor spring is always hooked to shoe that "hides" operating lever.

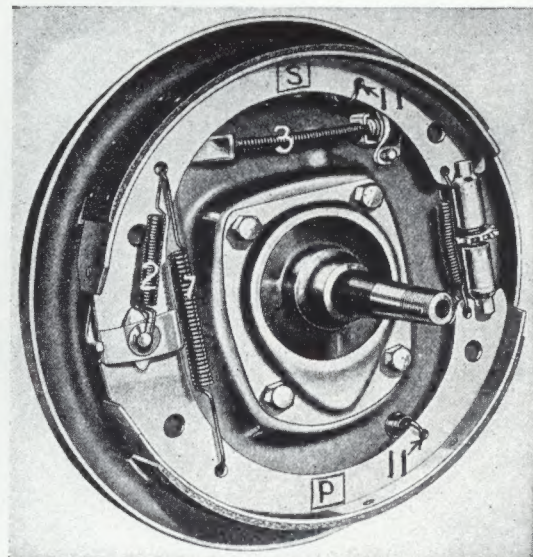


Fig. N29D — Left front brake. Special model used on some Willys cars. The anchor has flat sides and is non-adjustable. Note the single shoe to anchor spring (2) is connected to secondary shoe.

MASTERPIECES

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